PUGH (W. H.)

AN INAUGURAL ESSAY

ON THE

SUPPOSED POWERS OF NATURE

IN THE

CURE OF DISEASE;

SUBMITTED

TO THE EXAMINATION

OF THE

REVEREND JOHN ANDREWS, D. D. Provost,

(PRO TEMPORE),

THE

TRUSTEES, AND MEDICAL PROFESSORS

OF THE

UNIVERSITY OF PENNSYLVANIA,

ON THE SIXTH DAY OF JUNE, ONE THOUSAND EIGHT HUNDRED AND FOUR,

FOR THE DEGREE OF DOCTOR OF MEDICINE.

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TO DOCTOR SIMMONS J. BAKER,

OF NORTH CAROLINA,

This dissertation is inscribed, as a mark of esteem for his talents, and many amiable virtues; and as a small acknowledgment of gratitude for the numerous polite, and friendly attentions conferred on his friend, and affectionate pupil,

THE AUTHOR.

TO BENJAMIN RUSH, M. D.

PROFESSOR OF THE INSTITUTES, PRACTICE, AND CLINICAL MEDICINE, IN THE UNIVERSITY OF PENNSYLVANIA.

TO YOU, SIR!

Who have so often and so successfully opposed the fatal tendency of the operations of nature, and regulated such of them as were salutary in your conflicts with disease! Who have so often exposed yourself to public calumny for the public good! Who have repeatedly sacrificed private considerations to the welfare of your fellow men! and have dared to propagate new truths against the prejudices of ancient and modern times, this dissertation is dedicated as a mark of the esteem of your friend and pupil,

THE AUTHOR.

PREFACE.

In casting our eyes over the history of medicine, nothing strikes us more forcibly than the different theories, which have been occasionally broached to explain the operations of the animal economy, as well in health as in disease; and the variable, or I might say with propriety, the opposite modes of practice, which have been the consequence of them.

Many of them have, for a while, enslaved the reasoning powers of physicians, checked the spring of enquiry, and raised difficulties to impede the progress of knowledge in this useful science; and until the time of Brown, after which physicians entertained just ideas of animal life, we are not surprised to read theories built on a supposed intelligent principle, or a vis medicatrix naturæ, which, though they did not explain, lulled enquiry to rest, and served to cover the defects of systems, which had no foundation to recommend them.

Sydenham says, the operations of nature will ever remain a secret to man, and yet he has given his definition of nature in the following words: "A certain assemblage of natural causes, which, though destitute of reason, and contrivance, are directed in the wisest manner, while they perform their operations, and produce their effects." This is, at once, bowing to the shrine of nature, and admitting in a few lines, what his whole practise contradicts; for if nature, blind, and without reason, produces operations and effects in the wisest manner, what necessity would their be for physicians? And under such an impression, who would dare to raise his voice against her operations? Indeed, Sydenham, with other physicians have deviated far from their definition of the term in the practice of physic. For they, and Sydenham in particular, very rarely trusted intelligent nature to her own operations; but alternately controled her force, strengthened her weakness, or altogether counteracted her propensities; and though the term might not have had any injurious influence on their different modes of practice, experience has evidenced its baneful effects upon society. For it is owing to an injudicious reliance on the operations of nature, that patients, curable in the forming states of disease, are induced to neglect themselves until it be-

comes confirmed, and perhaps incurable. Thus millions have fallen victims to her fatal operations; and this reason, with necessity, have induced me to combine my feeble efforts with the many forcible arguments delivered from the clinical chair, in this university, to divest her of her superstitious influence in medicine; and to shew her to those who honor me with a perusal of this dissertation, in the light in which she should only be received by mankind.

AN INAUGURAL ESSAY

ON

THE SUPPOSED POWERS OF NATURE

IN

THE CURE OF DISEASE.

By the operations of Nature in this dissertation, is meant nothing more than physical necessity; or, in other words, the disposition, or susceptibility of the system, to be thrown into action by the application of any stimulus capable of making an impression sufficiently strong to produce regular or irregular excitement; and that those motions which are regular and in unison with the actions of the whole system are so from necessity, and constitute health: that those motions which are irregular, and which do not harmonize with the actions of the whole system are also the effects of necessity, and constitute disease, which I shall endeavour

to prove is not proportioned in its violence by a vis medicatrix naturæ, but by the force of the exciting cause, and the predisposition or susceptibility of the system to be thrown into irregular excitement, terminating in health, in disorder, or in death, according to the degree of morbid action, and the nature of the part affected. This definition excludes every thing like intelligence from the operations of nature, and, if just, shews how far she should be trusted in the cure of disease, where her actions, the efforts of necessity, disorganize and destroy without mercy. The end of her operations is seldom foreseen, and, like the blind, should rarely be left without a guide.

To substantiate these charges before others are alleged against the operations of nature in the cure of disease, it is necessary that I should take a short view of animal life in a healthy state, as it is now taught in this university, which, though not universally believed, nothing but prejudice has as yet opposed, and until facts are arranged to call in question, or reasons advanced to prove the contrary, I must continue to believe life, (in the language of Doctor Brown) to be a forced state, or, in other words, that the body is not a self-moving machine, but is kept in motion, or alive, by the constant action of stimuli upon its susceptibility of

excitement, and that these stimuli, (to be mentioned presently) either separately or combined in their application, are as essentially requisite to produce an harmonious unit of excitement, and its effects in sensation and thought, or perfect animal life, as hydrogen gas is to the formation of water, or oxygen air to the support of flame.

The term disposition to, or susceptibility of excitement, including irritability and sensibility, is used in the following pages to express a quality of matter; and it is upon a proper knowledge of the laws which govern this, that we are enabled to entertain just ideas of animal life, and to account with satisfaction to ourselves for the various phenomena of disease. Those which form the foundation of this dissertation, are the two following:

First....This susceptibility of excitement is common to the whole system, (the hair, nails, and cuticle excepted) and in health is in due proportion in every part of the body: hence, effects from impressions made on one part are propagated by association, or sympathy, to every other part of the system.

Secondly....It is greater, and more or less partial, according to the sudden, general, or partial abstraction of common, or unusual stimuli, and the length of time, which intervenes from their reapplication: hence we are enabled to explain the reason

why the absence of one usual stimulus should be followed by the increased action of others; and why even a common stimulus should sometimes excite the most violent degrees of morbid action.

To this general and harmonious susceptibility of excitement included under our first law, we will now, in as brief a manner as possible, apply stimuli. "The external of which, (to use the words of Dr. Rush) *are light, sound, odors, air, heat, and the exercise of the pleasures of the senses. The internal are food, drinks, chyle, the blood, a certain tension of the glands, which contain secreted liquors, and the exercise of the faculties of the mind, producing the action of the brain, the diastole, and systole of the heart, the pulsation of the arteries, the contraction of the muscles, the peristaltic motion of the bowels, the absorbing power of the lymphatics, secretion, excretion, hearing, seeing, smelling, taste, the sense of touch, and through the medium of these, sensation and thought." To treat further of the effects produced by the application of these stimuli would be both inadmissible and unnecessary. For believing that no person, who thinks on the subject, or who tries the simple experiment of depriving an animal of air, of heat, of food, or of blood, will, for a moment, deny that these are ne-

* Lectures on Animal Life.

cessary to support animal life, that this is a forced state; and thus grant me a foundation for what I shall advance, and from which I infer, according to our second law of susceptibility, that the animal economy is often predisposed, and upon the application of a common or unusual stimulus, called the exciting cause, is thrown into diseased action, or irregular excitement; and this, as I have shewn life in a healthy state to be the effect of necessity, must certainly be proportioned in its violence to the predisposition and force of the exciting cause. It being nothing more than the greater susceptibility of a part, to assume an inordinate action over other parts of the system, on the application of a cause, or of causes, which, agreeably to the last clause of our first law, would have simply produced elevated or healthy excitement.

Having thus stripped nature of her intelligence, we are prepared to investigate her operations in the different forms of disease, and to deprive her of the credit which she has acquired with the generality of mankind, and even with some physicians.

To shew the truth of this remark, I shall begin by observing, that Fevers, by which more perish than by the sword or famine, is an effort of nature to remove debility, and thereby to equalise the susceptibility of excitement. In the malignant and gan-

grenous states of fever, nature very rarely creates a discharge of any kind adequate to alleviate the violent symptoms, which accompany them, and which often end only in death. Even in the synocha and synochus states of fever, nature operates with such force that she destroys life, or leaves obstinate disorders behind in nearly half of those patients who trust to the vis medicatrix naturæ.

In the typhus state of fever nature renders the system insensible to all usual stimuli, and sometimes even to those of alcohol, and opium. I need scarcely add, that she often permits life to escape, not by the violence of her efforts to remove an offending cause but by her feeble and incompetent operations.

Nature creates no desire for a remedy; nor does she produce any process to remove the febricula, hectic, and intermittent states of fever, the last of which was once almost as formidable in England as the yellow fever has been in this city.

Nature has done good in fevers by depriving us of our appetite for food; but she does this less completely in the synocha and synochus states of fever, than in the low, and slow states of fever, where the use of aliment is absolutely necessary to enable the patient to withstand the duration, and not the force of the disease: for it is well known, that the

stomach often retains sufficient power to digest many different kinds of aliment, when the taste rejects, and the inclination of the patient causes him to refuse every thing.

Secondly....There are instances in the rheumatic and hydropic states of fever, of patients retaining too keen an appetite to be indulged with advantage.

Thirdly....Who will not admit nature's pernicious disposition to fill the stomach with food of any kind immediately after long fasting?* Hippocrates imputed the death of a certain Phylon's daughter to an improper and unseasonable supper, which she ate on the seventh day of her disease. After a solution of the fever of 1793, so keen was the appetite for solid, and more especially for animal food, says Doctor Rush,† that many suffered by eating aliment that was improper from its quality or quantity.

Nature has been said to do good in fevers, by exciting a desire for diluting drinks: but to shew that this is the effect of accident, and tends indiscriminately to kill, or to relieve, I must observe, that thirst is sometimes absent when diluting drinks are necessary. Hence we are accus-

* Clifton's Hippocrates, p. 65.

† Med. Inq. and Obs. vol. iii.

tomed to see patients parched with heat, and with a dry and furrowed tongue, insensible to the desire of water, and forgetting the obligation they owe to themselves of frequently taking diluting drinks. This symptom has been placed by Chisholm among the dangerous indications of the malignant fever of Grenada in 1793.

Secondly....Nature calls for cold drinks when they are improper; as in a chilly fit, and after the exhibition of an emetic, in the first instance doing no good, and in the latter, manifest injury. She prompts us to drink cold water when very warm, and this desire when gratified often proves fatal.

Thirdly....There are cases where diluting drinks are required in much larger quantity, than the most strenuous advocate for indulging the propensities of nature will admit to be proper. Hence we read in Thucydides, on the Plague of Athens, of men, half dead, laying about every well, desiring water; and hence we hear patients, in the Yellow Fever a few hours before their death declaring, in the extravagant language of insatiable thirst, that they could "drink up the Delaware."

Sweating has been esteemed, in all ages, by every nation, as a natural process in the cure of fevers; but that its beneficial effects are owing to necessity, and not to any intelligence or design in

nature to do the best, I infer from the following reasons.

First....They are often absent when the welfare of the patient requires them, and

Secondly....They are sometimes partial, and then always injurious; and

Thirdly....Even general sweats do not always relieve. Hippocrates, on the epidemic fever of the second year in Thasus, says, that sweats, though common, so far from relieving the patient, did him harm, and that many died even in a perspiration. Sydenham has recorded their injurious effects in the epidemic fever of London, in the years 1667, 8, & 9. Morganni describes a malignant fever in Italy, in which the patients died in profuse sweats, while their physicians were looking for a crisis from them. Let no credit, therefore, be given to nature for sweats in any disease.

Fourthly....Daily experience shews that sweats often continue to be profuse long after the solution of a fever, and thus prevent the patient's acquiring strength, predisposing him to a relapse, or terminating his life in a consumption.

Nature has been said to do much good in the eruptive states of fever, by expelling morbific matter: Though eruptions often appear in the measles, and

scarlet fever, without giving relief, and are never attended with advantage in the miliary fever ; and

Secondly....She terminates an er ysipelas in a mortification; and

Lastly....She drives out so many pustules in the small pox, when that disease proves fatal, that they are of themselves the cause of death, and often when the patient is so fortunate as to escape with his life, a deep marked skin and effaced beauty are lasting monuments of her cruelty.

In the intestinal states of fever, Nature has done good, by creating a diarrhœa, and thereby expelling bilious and acrid matter from the alimentary canal : but even here her operations proceed without any reference to the patient's welfare by a supposed intelligence. I infer that this is the case, because she often refuses to produce this healthy operation when it is necessary. Previous to an attack of the bilious fever, patients are generally costive, and so far from Nature's discharging the acrid bile, which filled the stomach and intestines of patients in the yellow fever of 1793, by a natural diarrhœa, we are informed* that many ounces of salts, and castor oil, and whole drams of calomel and jalap, were often given without producing that effect.

* Rush on the Yellow Fever.

Secondly....Instead of expelling acrid bile by a diarrhœa, she produces an obstinate puking, which causes its farther secretion, and consequently the longer duration and danger of the disease.

Thirdly....Nature produces a diarrhœa at an improper time, as in the close of a typhus fever.

Fourthly....After the cause which gave rise to the effect is removed, the diarrhœa often continues for a considerable length of time to the great inconvenience, and no small injury of the patient's health, as is evidenced in many persons after an attack of the measles.

Fifthly....Nature terminates a dysentery in a mortification of the bowels.

Sixthly....She does not confine her operations to the alimentary canal, where alone they would be useful in the cholera morbus and colic, but excites spasms in every part of the system, and thus destroys the patient by a violence, which is not necessary to remove the cause of the disease.

Nature has sometimes done good in fevers by producing a hæmorrhage; but she has also done much harm.

First....By bleeding from an improper part; as the lungs, the stomach, the liver, and the kidneys, which if not immediately fatal, predispose to a return of the hæmorrhage on every slight accession of mor-

bid action. Russel* says, that those patients only had a hæmorrhage from the lungs, in the plague, who were previously subject to hæmoptoe.

Secondly....When from a proper part, she either does not bleed enough: hence we read, in† Hippocrates, that most of those died of the epidemic fever of the second year, in Thasus, who lost but a few drops of blood from the nose; or

The hæmorrhage is in much larger quantity than is necessary, who can for a moment suppose the loss of six or eight pounds of blood, in one night, necessary to remove many of those states of fever, in which it often occurs?

Fourthly....Nature produces a hæmorrhage at an improper time. Russel says, in most cases where they occurred late in the Plague they terminated fatally; and I am inclined to believe that it was owing principally to these blunders of nature in performing this operation in the malignant fever of Grenada, of 1793, that Doctor Chisholm was induced to reject the lancet as injurious, and to see in every hæmorrhage the messenger of death. It is by these indications that nature may be said to exclaim to her advocates in the language of the Indian to the late

* Treatise on the Plague.

† Clifton's Translation.

general Washington, "your speech on the great paper is, to us, like the morning sun to a sick man whose pulse beats high in his temples: he sees it, and rejoices, but is not cured." In a word, "the operations of nature in violent degrees of morbid action, (to use the words of Dr. Rush*) should be regarded like the painted hands in dividing roads. They seem only to point the way we should go without moving to conduct us. Our journey must be regulated afterwards by further inquiries. In like manner the tendencies of nature should be carefully observed, but reason and experience must assist, restrain, or divert them according to circumstances."

Let us now inquire what nature does in those forms of fever, where these indications of cure, or accidentally salutary outlets of disease are absent, and we find her constantly occupied in the business of disorganization.

She ends a malignant and scarlet fever sore throat, in mortification, and until the lancet arrested the little patient from her hands in the cynanche trachialis a suffocation was her only termination.

Nature always does harm in the pulmonary states of fever. She throws a plethora upon the lungs in the peripneumonia notha. She ends a pleurisy and peripneumony in a vomica, or empyema. She often

* Lectures on Therapeuticks.

terminates a catarrh in aphthsis pulmonalis, and wastes the system by a constant fever.

In the nephretic state of fever, nature produces an engorgement or mortification of the kidneys; or converts them, as it were, into a sugar manufactory, not to support, but to deprive the system of any advantage otherwise to be derived from gratifying the enormous appetite and insatiable thirst, which she creates in a diabetes.

Does nature's operations in the different forms of the the cephalic state of fever tend to any thing but death?

What does nature do in an attack of the rheumatism or fit of the gout, to compensate for the pain which accompanies them, and for the contracted muscles, chalky secretions, and stiff joints, which they leave behind? Here I am confident of meeting with the approbation of all who have been subject to them in saying she does nothing.

But further. Instead of nature's curing a fever by a hæmorrhage, or sweat, she produces effusions in every cavity of the body, the ventricles of the brain not excepted, which again becomes the exciting cause of fever, not to relieve the patient by promoting absorption, but to increase the disease, emaciate the system, and destroy the susceptibility of excitement.

In the liver she produces obstructions, or an increased and altered secretion of bile, accompanied with an almost incessant vomiting. She terminates the acute and chronic ~~hepatitis~~ hepatitis in suppuration, and often kills the patient without warning him of his danger.

She ends the hæmorrhoidal state of fever in a fistula in ano.

By the ophthalmic and ~~adontalgic~~ otalgic states of fever she deprives us of the pleasure and utility derived from enjoying the senses of hearing and seeing. In the ~~odontalgic~~ state of fever she destroys the texture of the teeth, impairs the pleasure of eating, and thereby weakens the power of digestion.

In the angina pectoris, tetanus, hydrophobia, and apoplexy, nature uniformly kills. She creates a desire for liquid food, and absorbent earths, in dyspepsia; the former of which is always injurious, and though the latter gives temporary relief, it proves in the end a poison. Ask those who are subject to hysteria what nature does for them, and they will tell you, nothing but afflict them with pain. She creates an uncommon appetite for food in the hypochondriac disorder, and drives the melancholy patient to solitude, where, by brooding over the subject of his insanity, he increases his disease.*

* Doctor Rush's Oration on the Natural History of Medicine among the Indians.

To know what nature does to cure general mania, I need only appeal to the cells of public hospitals, and the physiognomy of their miserable inhabitants.

In the nervous system nature occasionally produces such a degree of sensibility from an apparently trifling cause, as the prick of a needle or lancet, that the slightest motion is often attended with the most exquisite pain, and even the crawling of a fly has sometimes excited convulsions. Does not this shew, that instead of a vis medicatrix naturæ, there is a vis destructrix naturæ, presiding over every part of the system?

Does nature do any thing to remove choria sancti vita, asthma, dyspnea, epilepsy, catalepsy, or palsy? No! The experience of ages has shewn her inability even to mitigate them.

We find nature equally incapable of removing disease from the lymphatic system. Deformity marks her progress in the rickets. Pain and misery are the companions, and death the end of a cancer left in the hands of nature. In the venereal disease she renders the patient an object of horror and disgust upon earth, and his body, after death, a loathsome repast for the tenants of the grave.

The want of power in nature to cure the diseases of the human body will receive additional weight by

considering how few brutes recover from disease by her operations, and how very rarely they die of old age. This must be evident to every person who takes the trouble to observe for himself.

It is by indulging the propensities of nature that all moral evil is produced in the world. She prompts us to cruelty and oppression, to lie, to steal, to rob, and to murder. She fixes the halter, and draws the knife of suicide. She excites national jealousy, promotes civil discord, and unsheaths the sword of revenge. She leads armies to battle, destroys cities, overturns empires, ravages the fairest countries, and manures the earth with human blood. For man is by nature prone to evil, and a person had as well contend that the spontaneous productions of a wilderness would support as many inhabitants as the same tract of country would in a highly improved state of cultivation; or that laws were not necessary to enforce justice, and to secure the rights of each individual in society; or that a ship could, by the laws of her mechanism, be enabled to visit any one of the most distant ports of the globe without a compass, or a commander to lay her course, and regulate her sails to the winds, as to suppose the human body, exposed to the many deadly foes which assail it in the luxurious habits and customs of civilized life could,

by a vis medicatrix naturæ, or the laws of its organization, be capable of returning from many of the different forms of morbid action to its original state of healthy excitement without the aid of medicine and judgment of a physician to regulate her blind operations.

It is only by considering disease in this light, that we are enabled to point out its unit upon the ruins of nosology; to substitute reason and judgment for empiricism and to shew the necessity and excellency of the profession. Nor should an acknowledged inability to cure some forms of disease, and to announce with certainty our power to remove others, be any more called an objection to the science of medicine, than the existence of an idiot should be advanced to prove the intellectual capacity of man to be inferior to that of the brute creation; or that the accidents which happen at sea, should be given as a sufficient reason to debar mankind from the advantages of navigation.

Secondly....It is by considering disease in this light that we are shewn the propriety of attacking it in every instance of its forming state. For we are often able to prevent those forms of disease which we cannot cure, and the early application for relief would be attended with the advantage of less expense, and loss of time to the patient.

Lastly....It is under a belief of the doctrine contained in these pages, that we are shewn the necessity of attending closely to our patients that we may restrain, assist, or altogether counteract the propensities of nature, according to the state of the system, the force of the disease, and nature of the part affected.

I now commit this dissertation to the public, without any further apology for its imperfections, than its having been written only in compliance with a law of the university. Though I believe it does not contain a principle which is not strictly true, and perhaps the most useful in the practice of medicine. He who believes them will perceive, that it is the judgment in varying the application of remedies to the different states of the system that distinguishes the true physician from the empiric, who, relying on the virtues of his medicines as positive, prescribes for the name of a disease, without recollecting that what is a remedy at one time is poison at another, and that the action of medicine, like cold, is only a relative term.

In taking leave of the Professors of the University, I feel pleasure in thus publicly acknowledging the advantages I have derived from attending their lectures: but more particularly in thanking Doctor

Rush, for the polite attention which, as my friend and preceptor, he has ever discovered in communicating useful information, deduced both from his public and private practice.